CGIAR research program on Agriculture for Improved Nutrition and Health

Hung Nguyen-Viet and Delia Grace

International Livestock Research Institute

Oxford University Clinical Research Unit Seminar

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ILRI
INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE

CGIAR RESEARCH PROGRAM ON Agriculture for Nutrition and Health
Led by IFPRI

TRƯỜNG ĐẠI HỌC Y TẾ CÔNG CỘNG HANOI SCHOOL OF PUBLIC HEALTH

Outline

- CGIAR and ILRI
- CGIAR Research Program on Agriculture for Nutrition and Health (A4NH)
- Food safety in informal market
- Examples from Vietnam

ILRI CGIAR

✓ CGIAR: CGIAR 15 centers (IRRI, CIAT, IWMI…)
✓ ILRI: International Livestock Research Institute

- Staff: 700
- Budget: $60 million
- 30+ scientific disciplines
- 120 senior scientists from 39 countries
- 56% of internationally recruited staff are from 22 developing countries
- 34% of internationally recruited staff are women
- Large campuses in Kenya and Ethiopia
- 70% of research in sub-Saharan Africa

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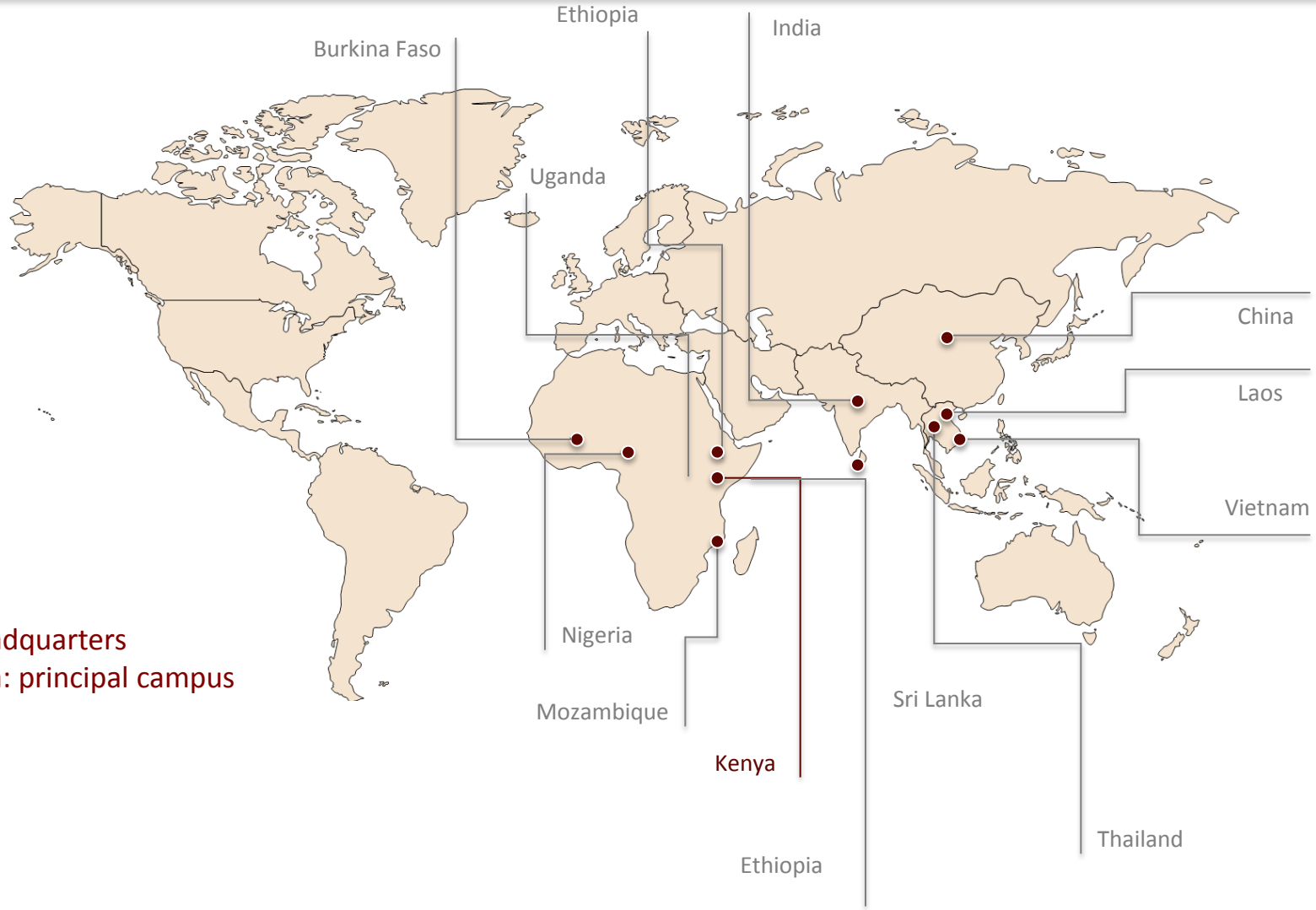
ILRI Offices



Nairobi: Headquarters
Addis Ababa: principal campus

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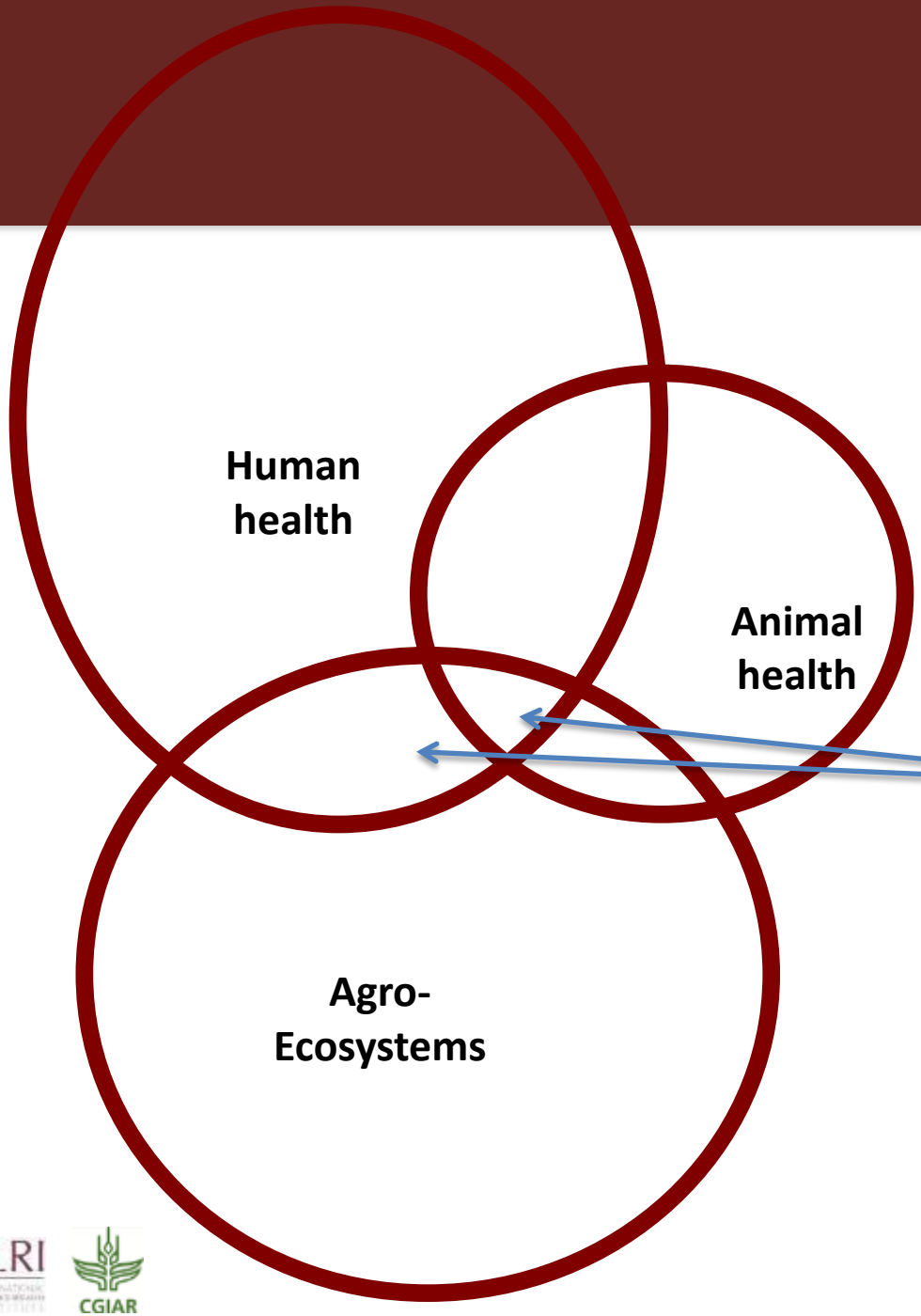


HEALTH STAKEHOLDERS

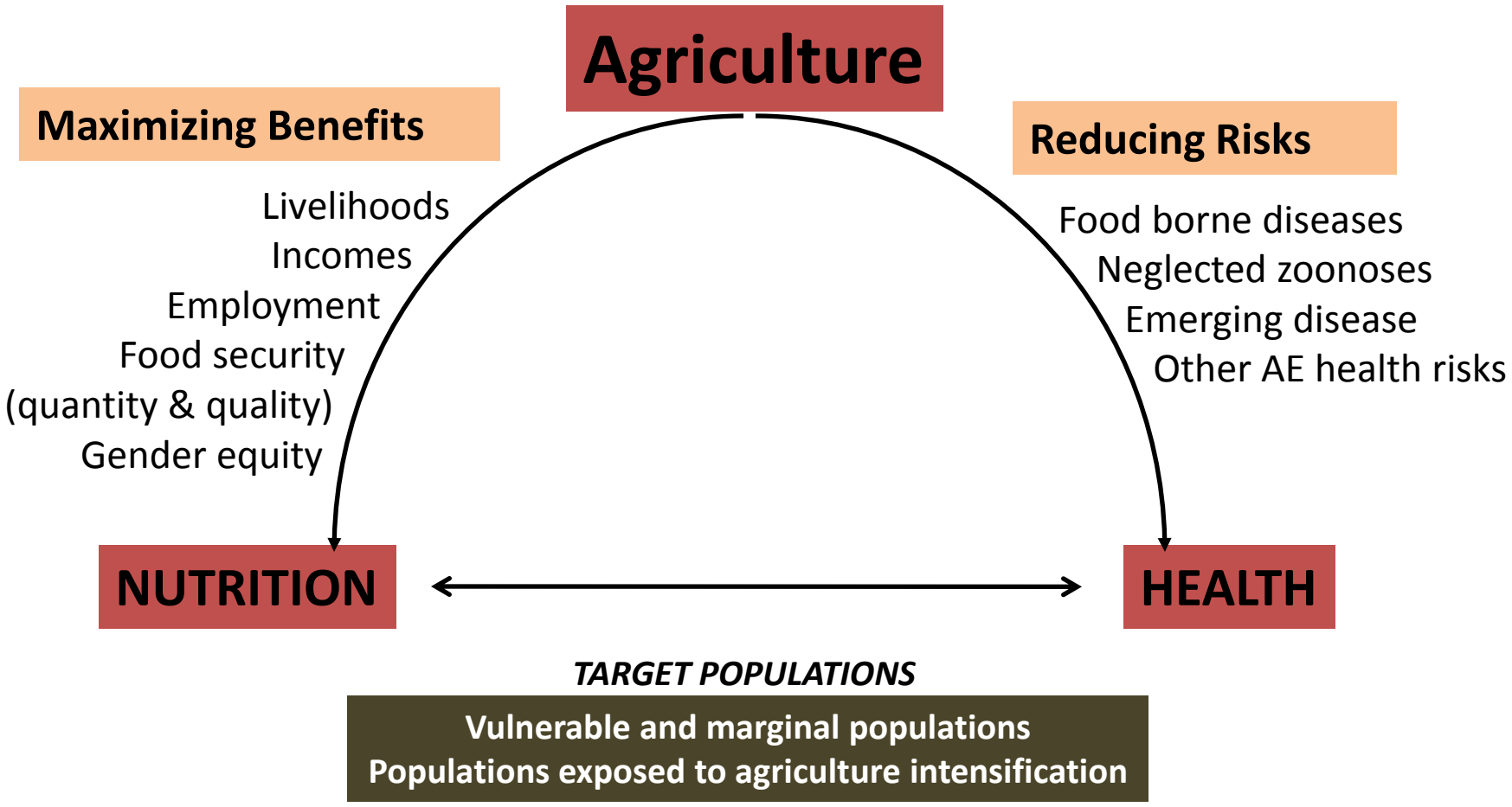
- International organisations
- Regional organisations
- Private sector health provision
- Public health
- Veterinary public health
- NGOs
- Conservation
- Environment

International agricultural health research

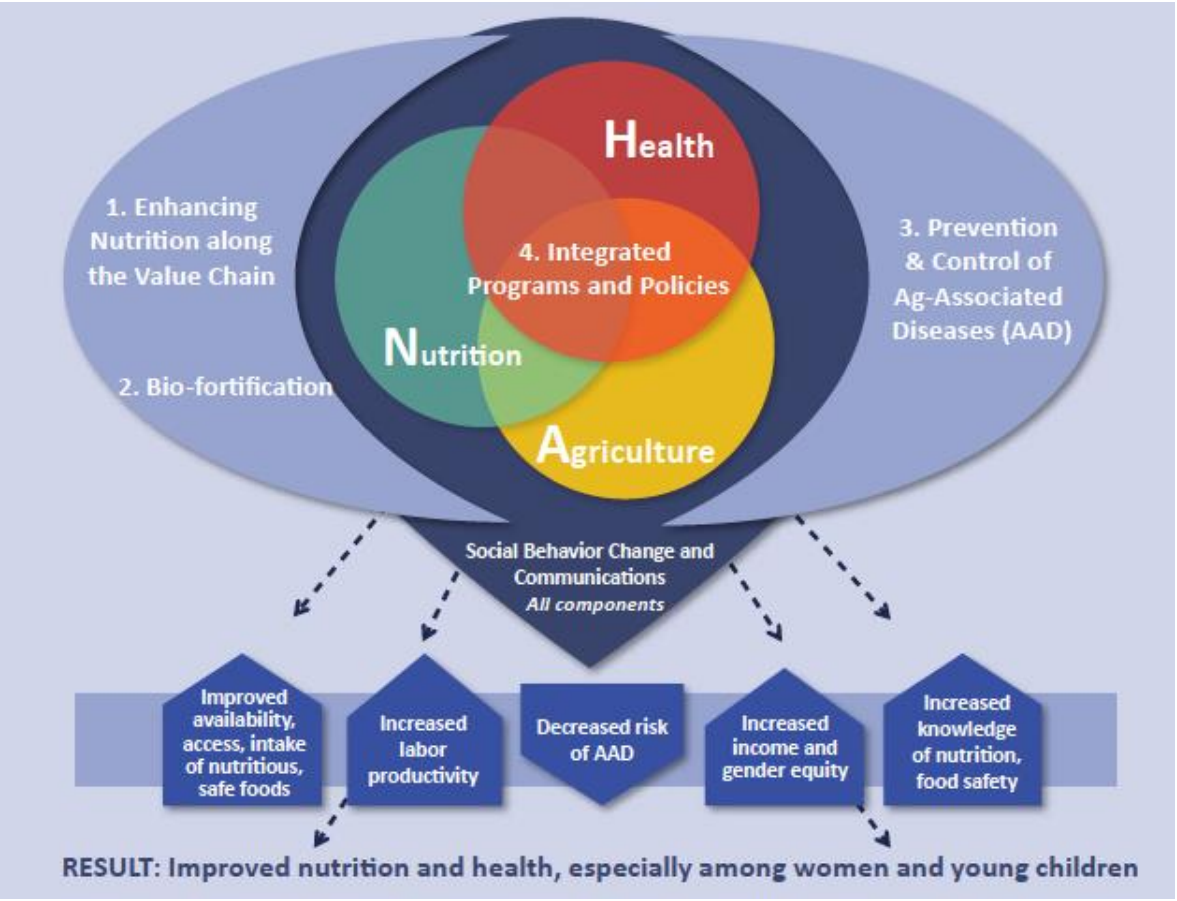
RISK CREATORS

- Agriculture, intensification
- Natural resource management
- Industry
- Urbanisation
- ETC

Key goal of A4NH



CGIAR Research Program on Agriculture for Nutrition and Health (A4NH)



- 3 components around human nutrition (IFPRI)

1 component on prevention and control of Agricultural Associated Diseases

- Food safety
- Zoonoses
- Emerging diseases
- Ecohealth/OneHealth

Integrated programs & harmonized policies

RESEARCH PROGRAM ON Agriculture for Nutrition and Health
CGIAR
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- aghealth.wordpress.com
- www.a4nh.cgiar.org

Agriculture-associated diseases

Goal: Prevent & control AAD for improved food safety, water quality, GAP and better control of zoonoses & emerging diseases

Sub Components:

- Improving **food safety**
- Controlling **zoonotic diseases** and diseases emerging from animals
- Other health risks of agro-ecosystems

Projects on food safety in informal markets

Project	Objective	Location	Duration
Safe Food, Fair Food	• Assess risk in wet market • Pilot test risk management • Capacity development • Policy engagement	Egypt, Ethiopia, Uganda, Tanzania, Senegal	2012-2015
PigRisk		Vietnam	2012-2017
Rapid assessment	Assess food safety & nutrition research opportunities	Tanzania, Uganda, Vietnam, Zambia	2012-2014
GetDairy	Training & support of informal dairy sector	India	2008-2014
MorePork	Component on pork safety & nutrition	Uganda	2014-2017
CowKiller	Multipathogen survey	Tanzania	2013-2014
PeriMilk	Assess urban bTB & AMR	India	2014-2017

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Projects on aflatoxins

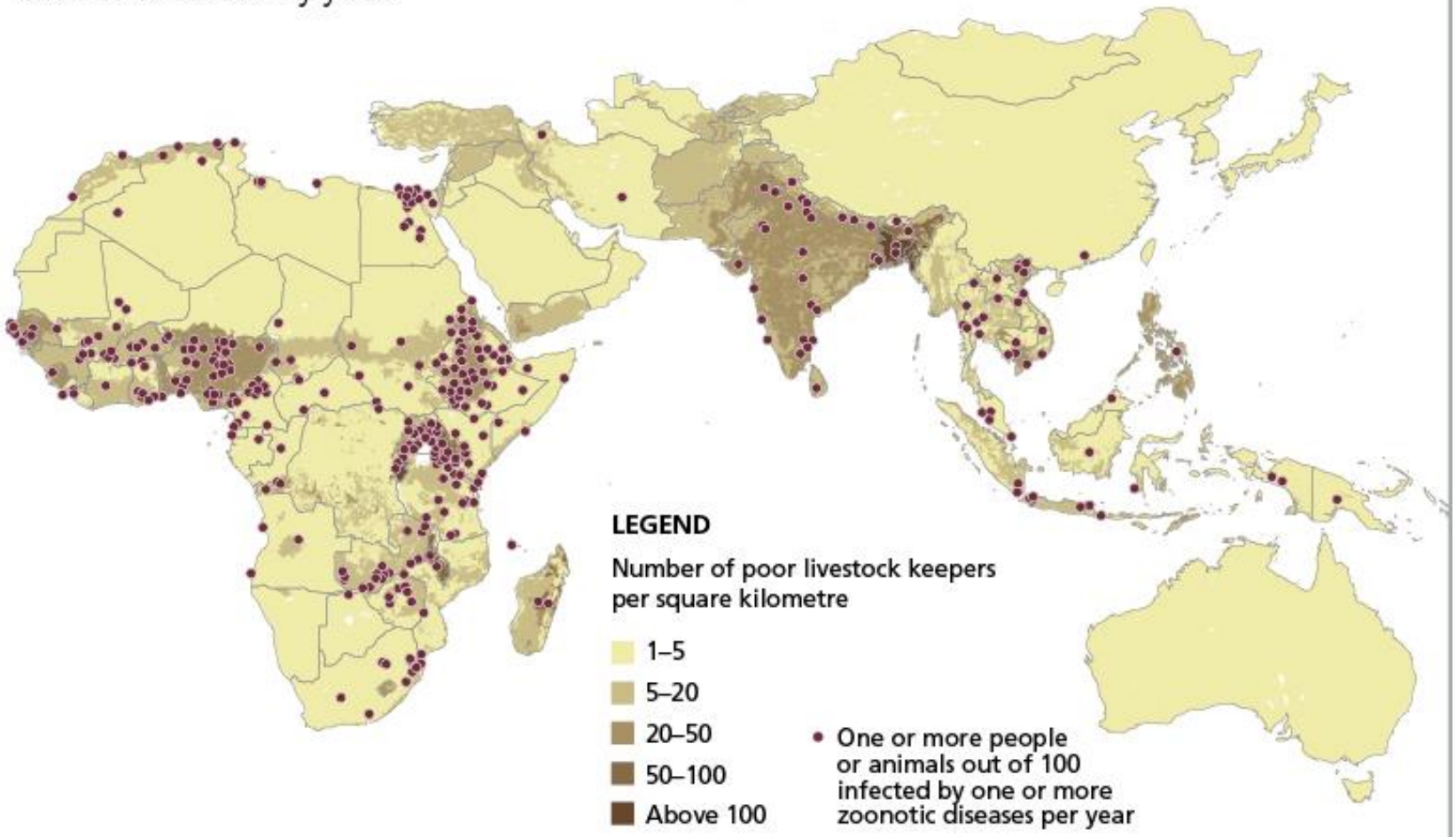
	Project	Objective	Duration
ILRI	MyDairy	Risk and economic assessment of aflatoxins in dairy chain	2012-2015
	Afla-Extra	Review & map aflatoxins Aflatoxin impact on livestock	2012-2013
	BecA	Screen wheat for resistance; diagnostics; kernel sorter; maps; decontamination	2011-2016
IFPRI	Portfolio on market incentives for aflatoxin management RCT on impact of aflatoxins on stunting		
IITA	Portfolio on biological control of aflatoxins using Aflasafe Writing policy packages for EAC		
ICRISAT	Integrated control of aflatoxins in groundnuts		
CIMMYT	Breeding resistant maize varieties		

Projects on disease drivers, emergence

Project	Objective	Duration
EcoZD	Ecohealth approaches to assessing and managing zoonotic diseases in SE Asia	2008-2014
Healthy Futures	Mapping and modelling Rift Valley Fever (malaria, schistosomiasis)	2011-2014
DDDAC	Diseases associated with irrigation: detection, impacts and management	2012-2015
LITS	Assessing and developing livestock traceability systems	2013-2014
EbolaRisk	Assessing risk of Ebola emergence in Uganda	2012-2014

Greatest Burden of Zoonoses Falls on One Billion Poor Livestock Keepers

An ILRI study shows that zoonotic diseases are major obstacles in pathways out of poverty for one billion poor livestock keepers. The diseases mapped cause 2.3 billion human illnesses and 1.7 million human deaths a year. In poor countries, the diseases also infect more than one in seven livestock every year.

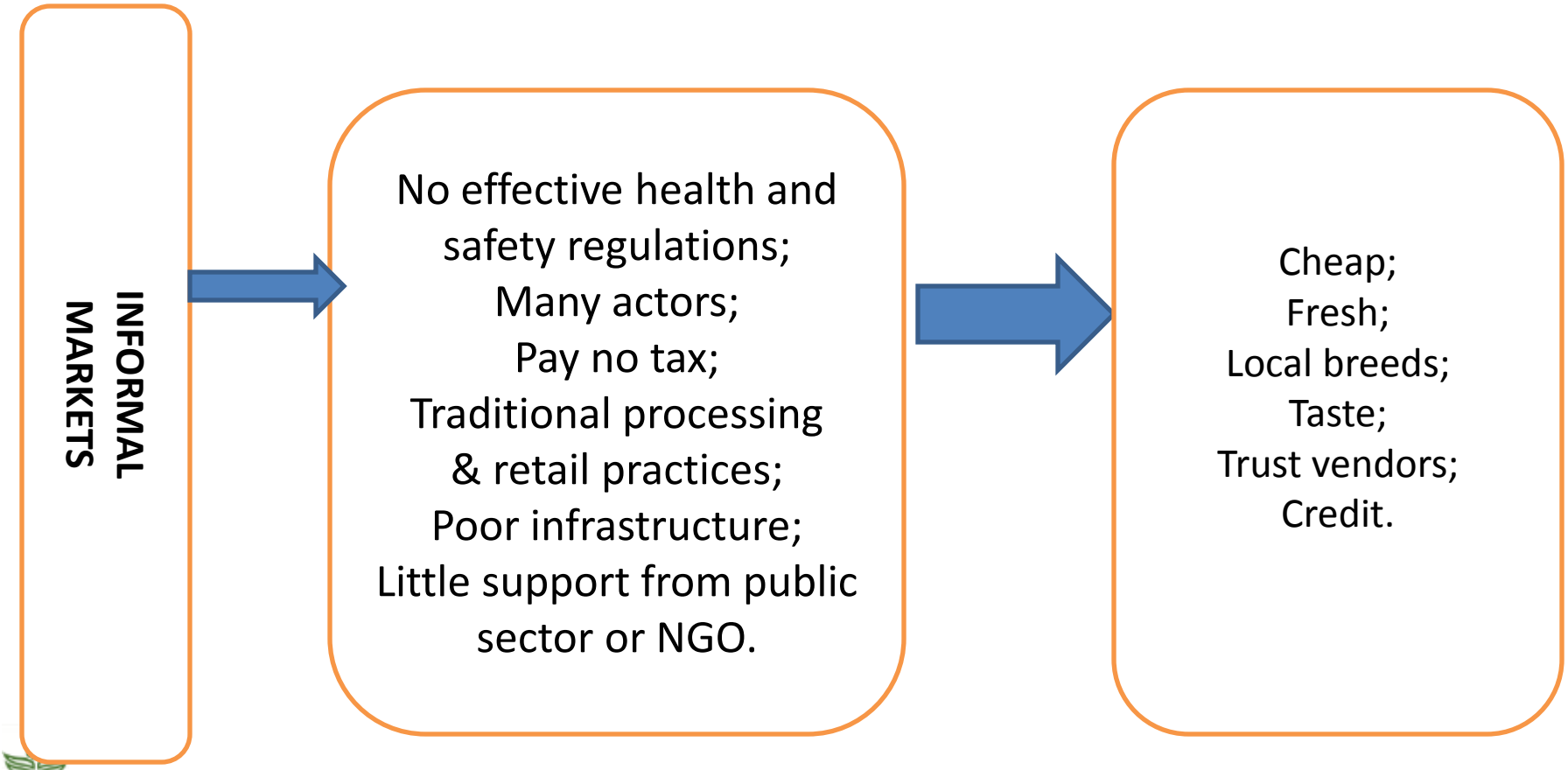


Map by ILRI, from original published in an ILRI report to DFID: *Mapping of Poverty and Likely Zoonoses Hotspots*, 2012.

ILRI

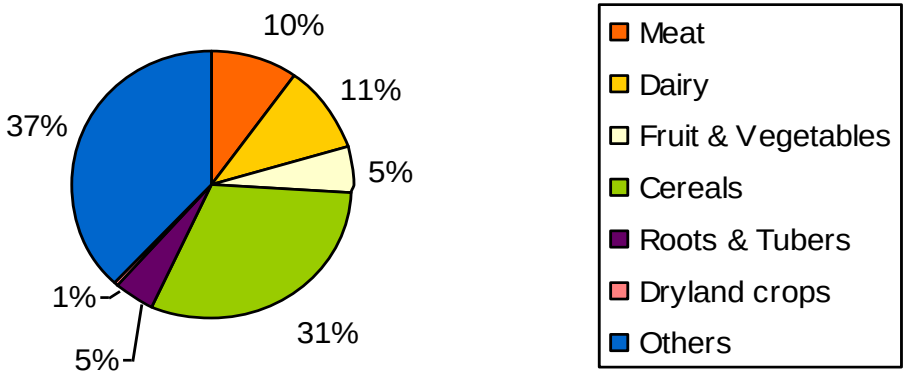
Food safety in informal market

More than 80% of perishables bought from *informal markets*



Africa: one billion consumers with high potential to consume more livestock products

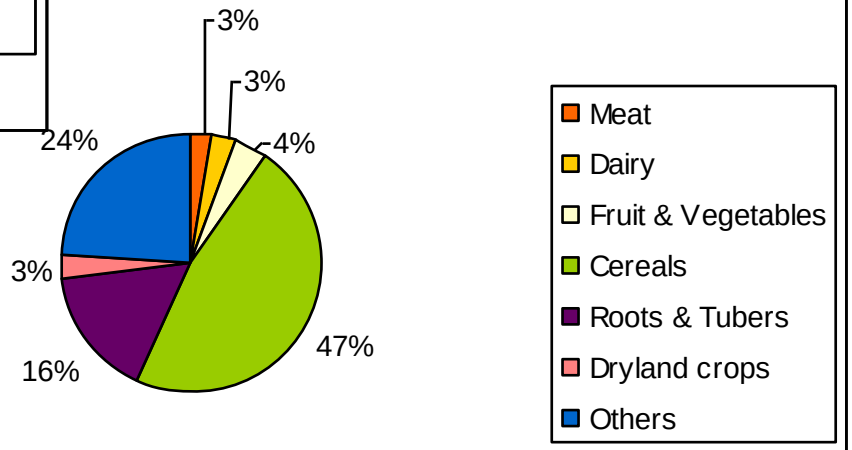
Europe - 2000 Diet composition



By 2050: 2 billion consumers

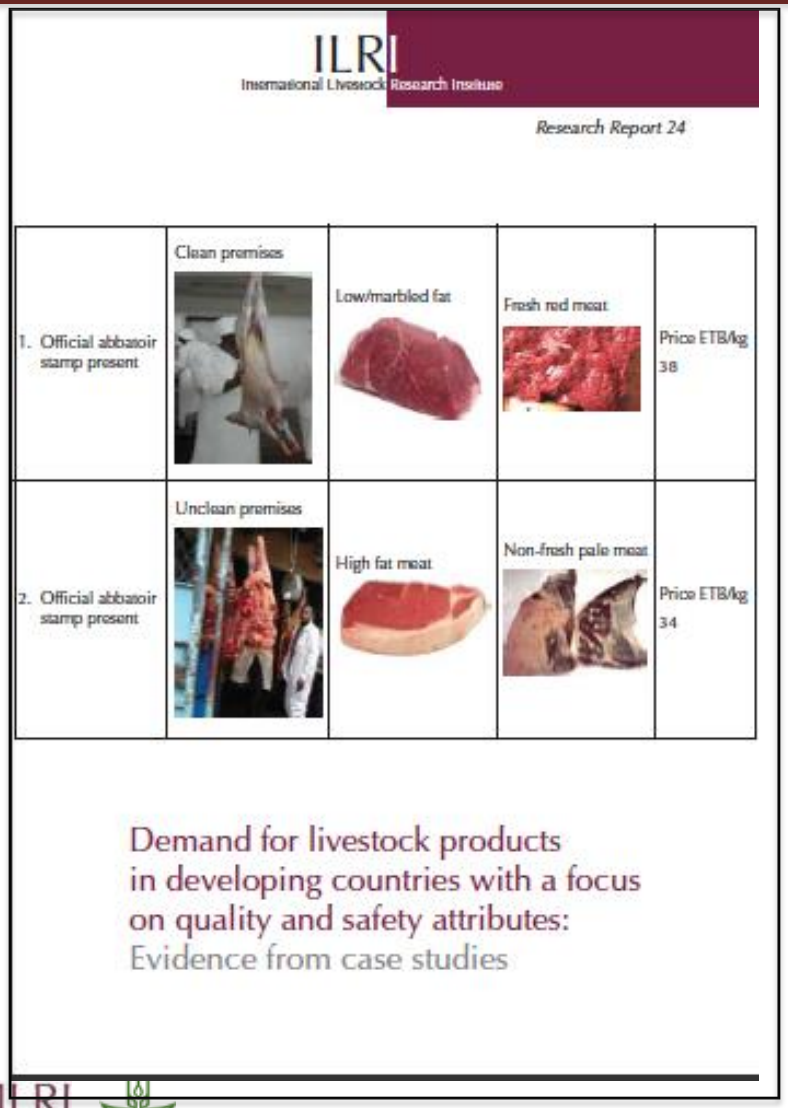
Europe: ASF 21% of diet
SS Africa: ASF 6% of diet

SSA - 2000 Diet composition



Source: Herrero et al 2008

Increasing concerns over food safety



In 7 developing countries studied

- Many/most reported concern over food safety (**40-97%**)
- Willing to pay **5-10%** premium for food safety
- Younger, wealthier, town-residing, supermarket-shoppers willing to pay more for safety
- Buy **20-40%** less during animal health scares

Jabbar et al.; Lapar et al.

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High levels of hazards
across different settings and value chains

- First reported *Trichinella* in **pork** in Uganda; *Listeria* in **milk and fish** in Ghana
- Faecal bacteria unacceptable in **88% of pork samples** in Nagaland
- **98% of meat** in Ibadan unacceptable by one or more of 3 standards (TAC, EB, col)
- Unacceptable *B. cereus* in **24% of boiled milk** in Abidjan
- Commercial broilers:

  30% of chicken sold in South Africa unacceptable for *S. aureus*
- Farmed fish:

  77% unacceptable TAC; **69% unacceptable** for *S. aureus* in Egypt

Variable levels of risks and risk factors

- **4% consumers Vietnam report GIT illness in last 2 weeks**
  - *No* relation to pork or meat consumption, *strong* relation to vegetable consumption
- **9% consumers in Nigeria report GIT illness in last 2 weeks**
  - *Strong* relation to meat consumption
- **23% consumers in Nagaland report GIT illness in last 2 weeks**
  - *No* relation to pork, meat or vegetable consumption, *strong* relation to hygiene

Importance of social, economic and environmental factors

- The meat of women butchers in Nigeria had *less* microbial contamination than meat of men butchers in the same market.
- Urban dairies in Uganda that experienced harassment from authorities had *fewer* good practices than those who didn't.
- Food in informal markets is *more* affordable:

Most common price of raw milk	Most common price processed milk
50 KES a litre	90 KES a litre

Survey in Dagoretti, Nairobi, 2013

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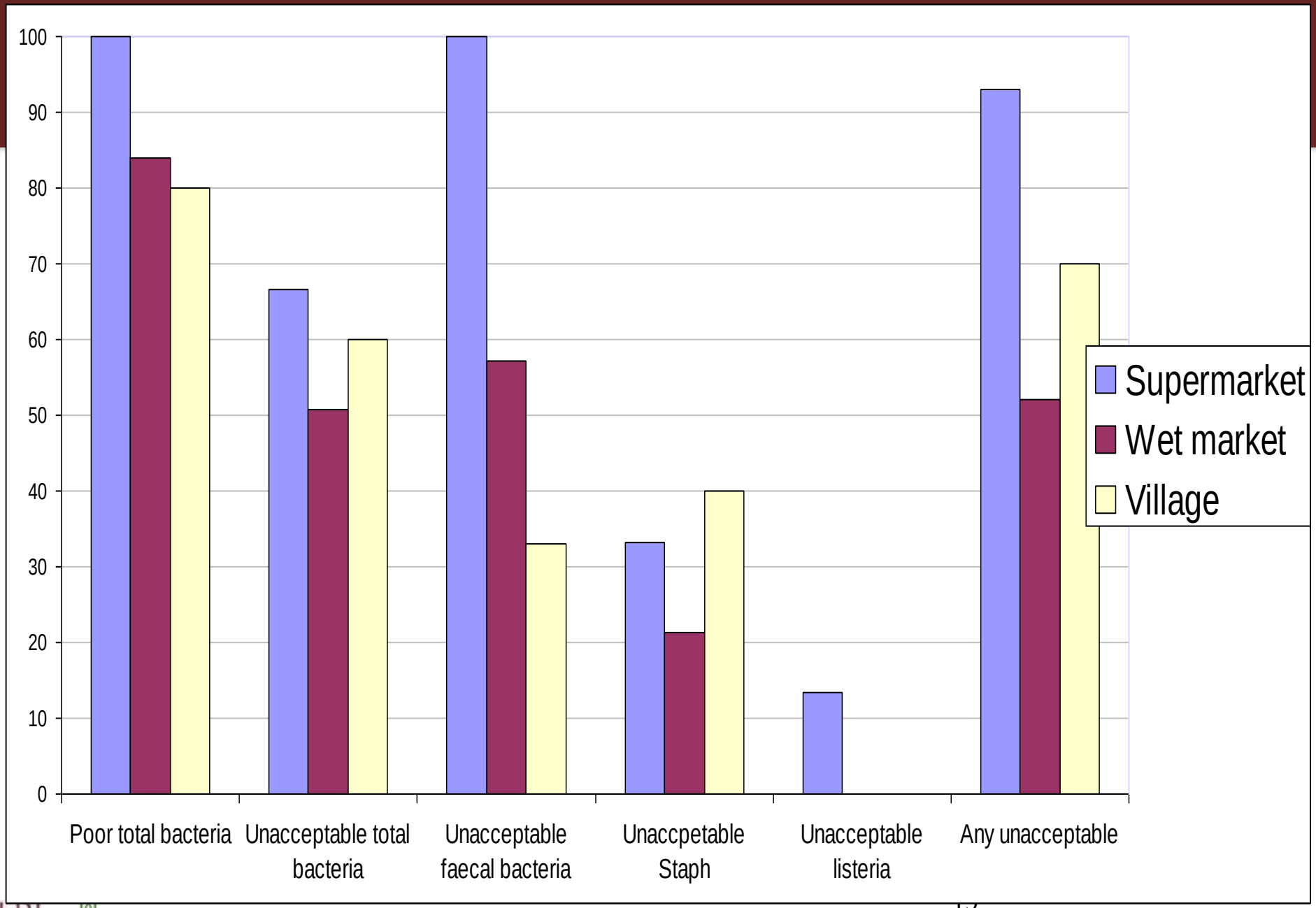
100
90
80
70
60
50
40
30
20
10
0
Poor total bacteria
Unacceptable total bacteria
Unacceptable faecal bacteria
Unaccpetable Staph
Unacceptable listeria
Any unacceptable
Supermarket
Wet market
Village

Improvements are feasible, effective, affordable

- **Branding & certification of milk vendors in Kenya**
  - Led to improved milk safety and saved economy USD 33 million
- **Peer training, branding, innovation for Nigerian butchers**
  - Led to 20% more meat samples meeting standards
  - Intervention cost USD 9 per butcher, but resulted in savings of USD 780 per butcher per year from reduced cost of human illness
- **Providing information on rational drug use to farmers**
  - Led to fourfold knowledge increase, twofold better practice, and halving of disease in animals

Food safety project (PigRISK)

to improve the livelihoods of rural and urban poor in Vietnam through improved opportunities and incomes from pig value chains as a result of reduced risks associated with pork-borne diseases.

- Assess impacts of pork-borne diseases on human health and identifying critical control points/opportunities for risk management using a “farm to table” approach. *(Salmonella, Streptococcus suis, antibiotic residues, growth promoters)*

- Develop and test incentive-based innovations to improve management of human health risks

- Sustainably improve capacity to assess and manage risks by engaging smallholders and co-generating evidence.

Key actors: producer, slaughterhouse, retailer, trader, consumers, input supplier. Hung Yen and Nghe An

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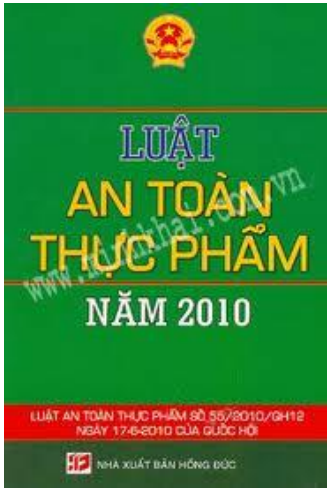
Taskforce of risk assessment for food safety

Taskforce of risk assessment for FOOD SAFETY in Vietnam: linking science to policy to increase food safety

- Composed by food safety risk assessment experts from Universities, research institutes, policy makers from MOH and MARD
- Works on “case studies” on risk assessment of food commodities prioritized by policy makers and develop risk assessment guideline
- Trainings and follow-up
- Communication and dissemination



Risk assessment for food safety in Vietnam

Thank you

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ILRI is a member of the CGIAR Consortium

Box 30709, Nairobi 00100 Kenya
Phone +254 20 422 3000
Fax +254 20 4223001
Email ilri-kenya@cgiar.org

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Central America • East Africa
• South Asia • Southeast and East Asia
• Southern Africa • West Africa